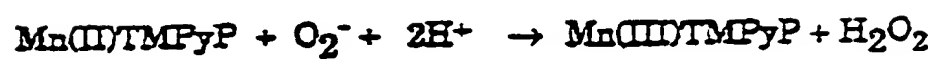
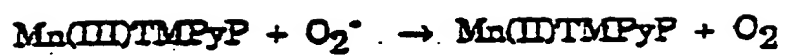


**Figure 1****Mechanism**

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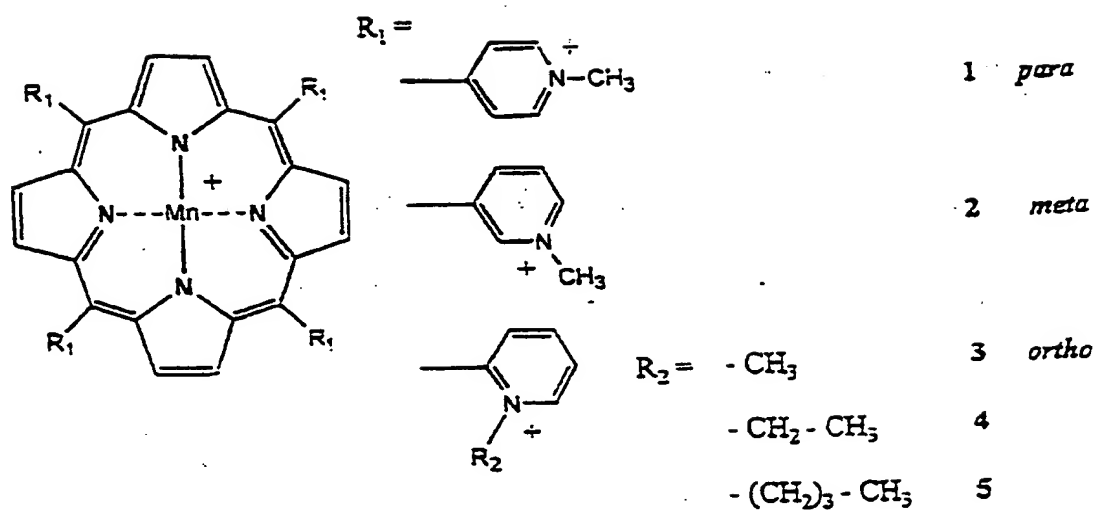


Figure 2. Manganese *meso*-tetraKis *N*-alkyl-pyridinium based porphyrins

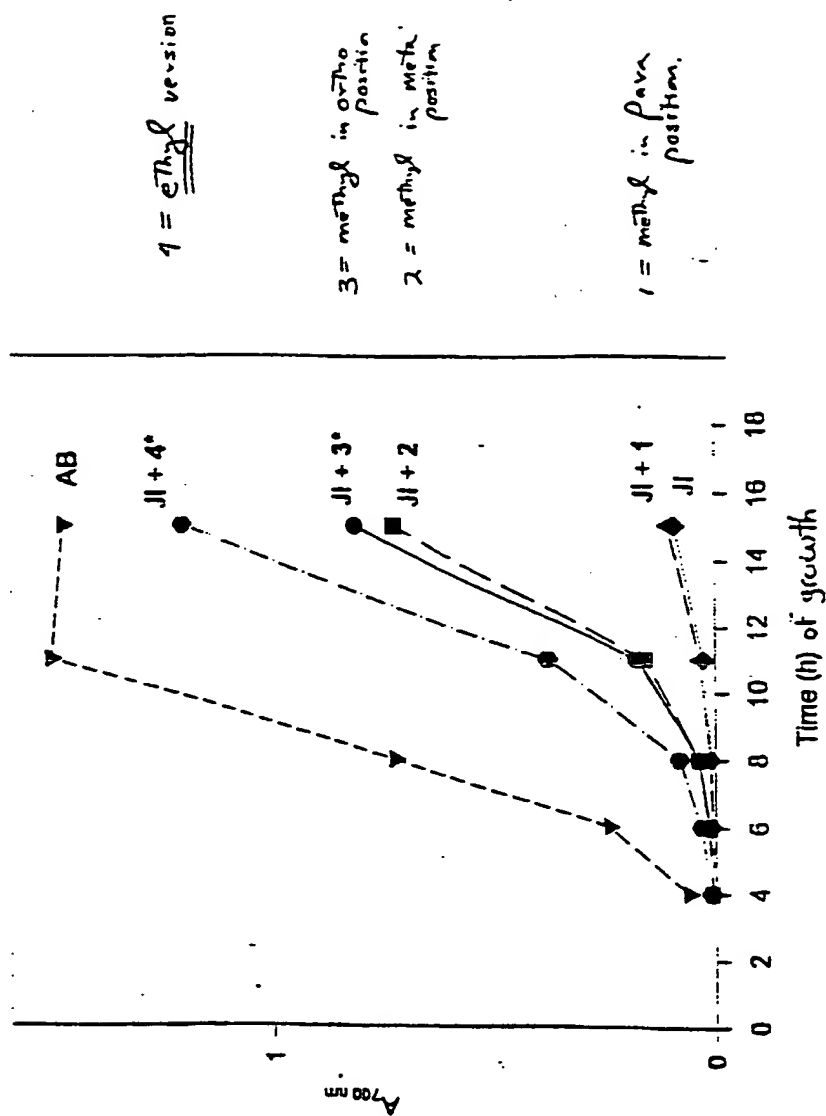
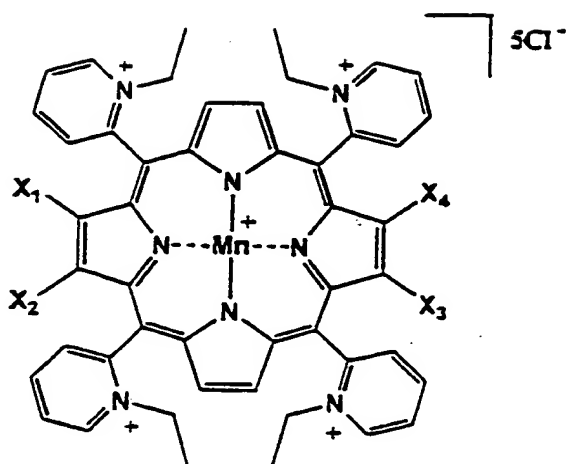


Figure 3 SOD activity in vivo (*E. coli*) of 1, 2, 3\* and 4\* (25  $\mu$ M) in minimal medium (\*mixture of atropisomers, JI = SODs deficient strain, AB = parental strain).



MnTE-2-PyP <sup>5+</sup>	X <sub>1</sub> =X <sub>2</sub> =X <sub>3</sub> =X <sub>4</sub> =H
MnCl <sub>1</sub> TE-2-PyP <sup>5+</sup>	X <sub>1</sub> =Cl, X <sub>2</sub> =X <sub>3</sub> =X <sub>4</sub> =H
MnCl <sub>2</sub> TE-2-PyP <sup>5+</sup>	X <sub>1</sub> =X <sub>2</sub> =Cl, X <sub>3</sub> =X <sub>4</sub> =H
MnCl <sub>3</sub> TE-2-PyP <sup>5+</sup>	X <sub>1</sub> =X <sub>2</sub> =X <sub>3</sub> =Cl, X <sub>4</sub> =H
MnCl <sub>4</sub> TE-2-PyP <sup>5+</sup>	X <sub>1</sub> =X <sub>2</sub> =X <sub>3</sub> =X <sub>4</sub> =Cl

Figure 4

Chemical structure of the repeating unit of poly(2,5-dimethyl-2,5-dipyrrole) is shown above the spectrum. The structure is a ladder polymer with two fused pyrrole rings per repeat unit. The protons are labeled:  $H_A$  and  $H_B$  for the pyrrole ring protons, and  $H_C$  for the methyl protons. The spectrum shows three main signals: a multiplet at ~9.1 ppm (labeled 4 x 1H (Pyr)), a multiplet at ~8.8 ppm (labeled  $H_A/H_B$ ), and a sharp singlet at ~8.6 ppm (labeled  $H_C$ ). Integration values are shown above the peaks: 4 for the pyrrole region, 4 for the  $H_A/H_B$  region, and 2 for the  $H_C$  region.

100

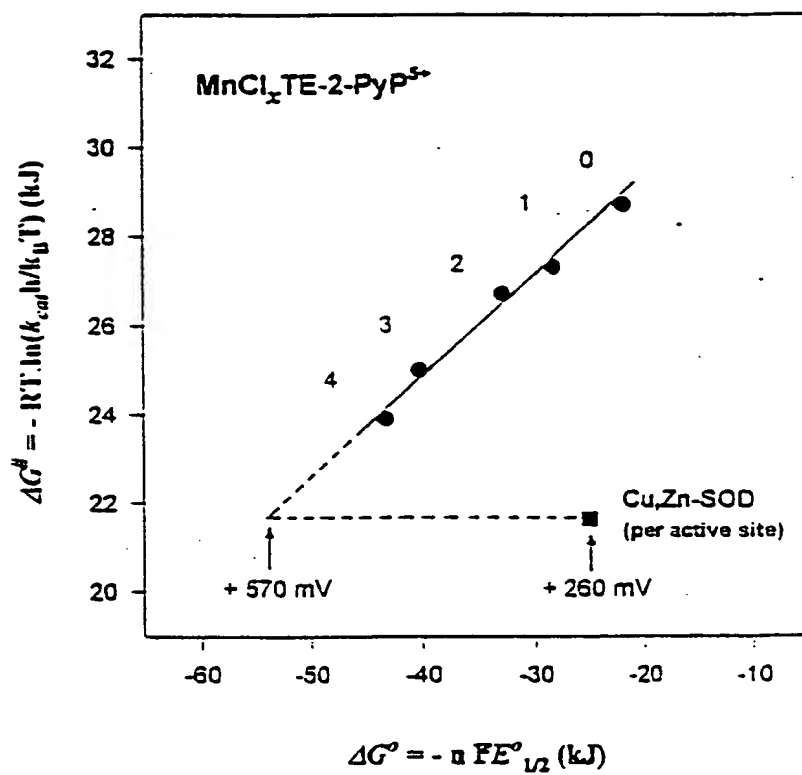
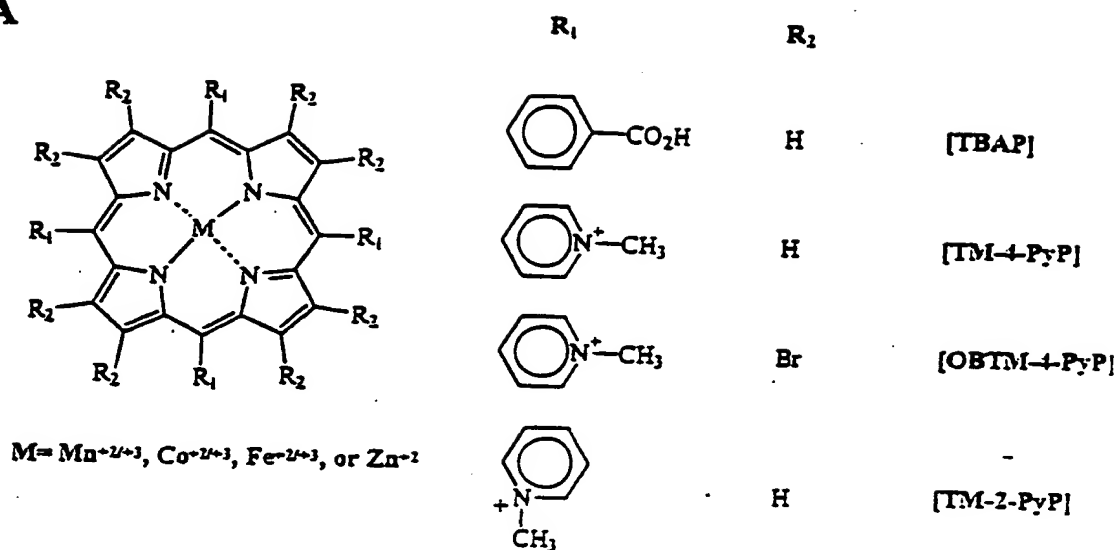


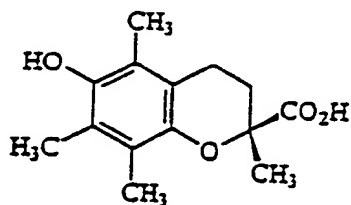
Figure 6

A



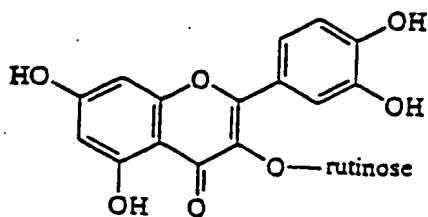
### Metalloporphyrins

B



### Trolox

C



### (+)-Rutin

Figure 7

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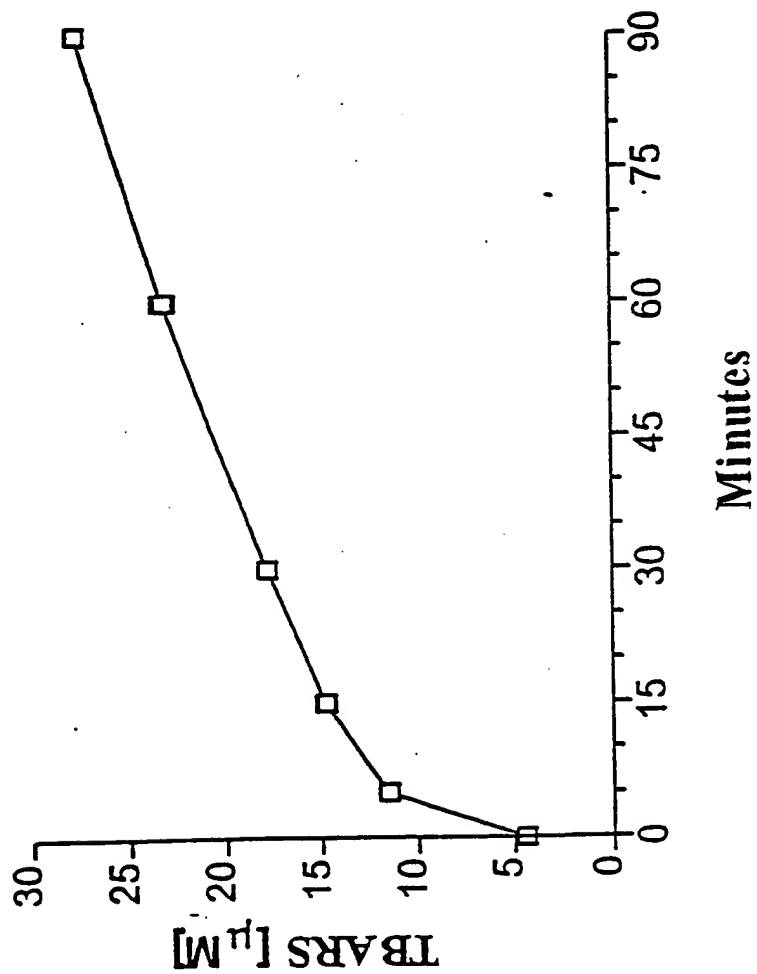


Figure 8



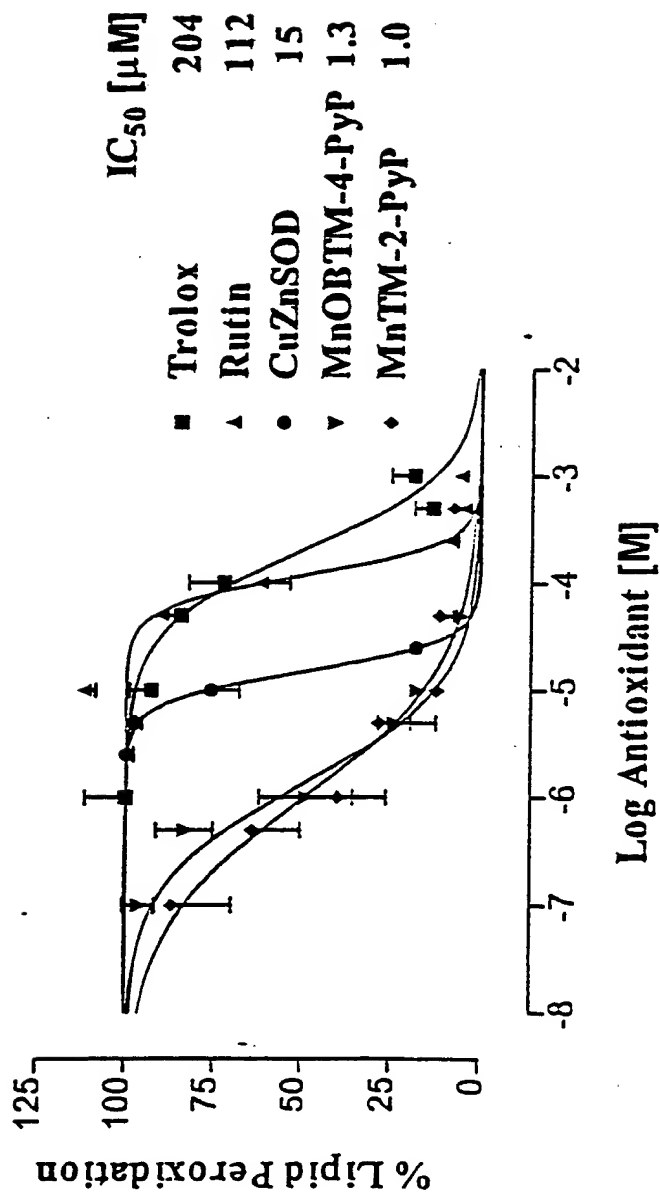


Figure 9

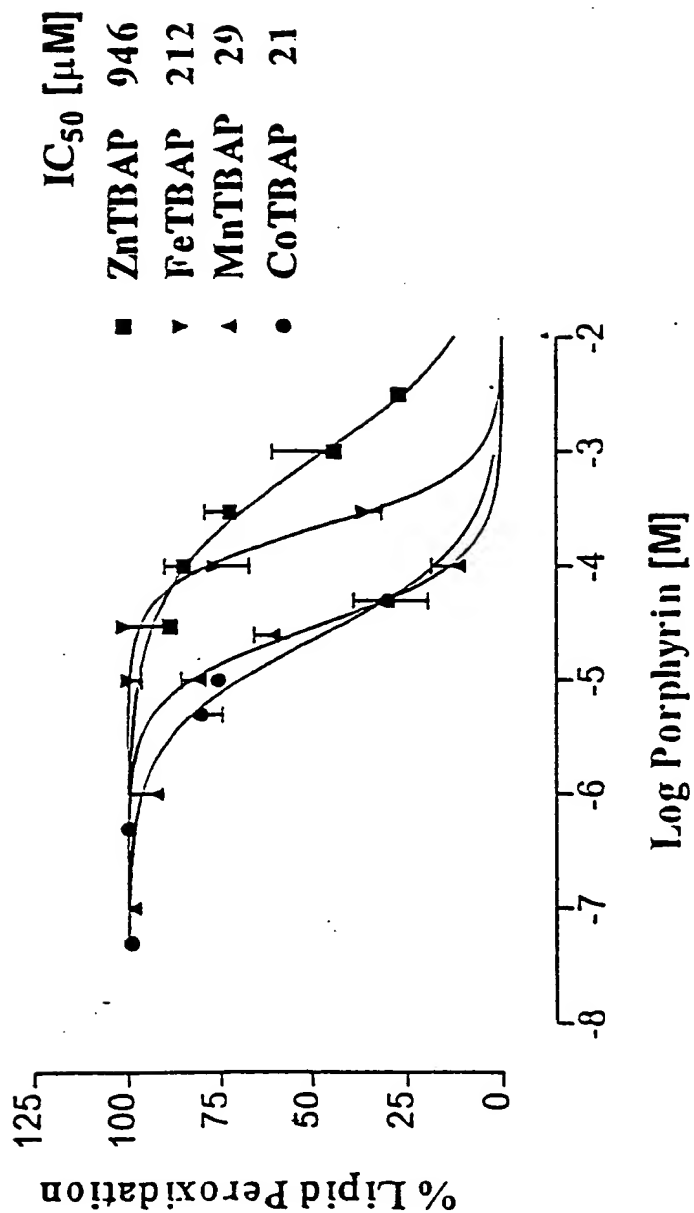


Figure 10

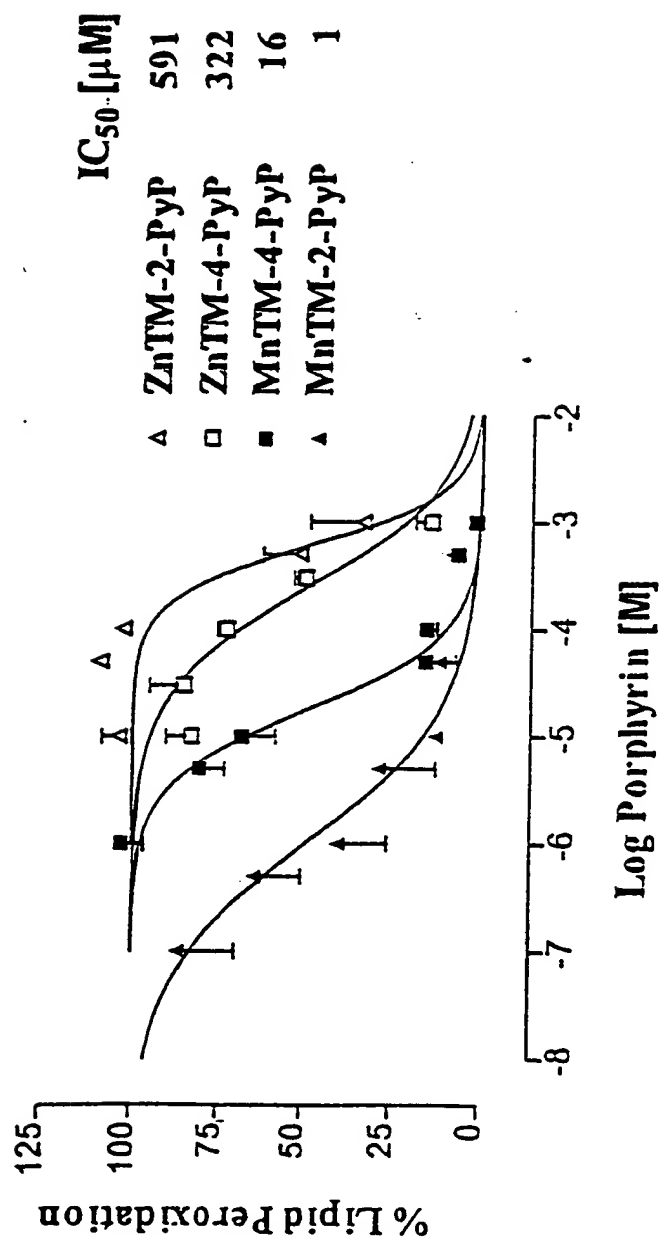


Figure 11